

AD-A037 366

NORTHROP CORP NEWBURY PARK CALIF VENTURA DIV

F/G 15/1

TRANSPORTABLE INTERIM ANTI-SUBMARINE CLASSIFICATION ANALYSIS CE--ETC(U)

MAY 63 C L FULLER

NOBSR-89225

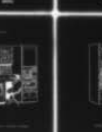
UNCLASSIFIED

NVR-2755

NL

1 of 1

ADA037366



END

DATE

FILMED

4-77



ADA 037366

**NORTHROP**

AD NO.

DDC FILE C

689D -

To: Capt. Wallace.

DISTRIBUTION STATEMENT A

Approved for public release;  
Distribution Unlimited

~~CONFIDENTIAL~~  
**UNCLASSIFIED**

DDC

4-  
RECEIVED  
MAR 7 1977  
D

UNCLASSIFIED

~~CONFIDENTIAL~~

MOST Project - 1

(1)

BY	<input checked="" type="checkbox"/>
DATE	<input type="checkbox"/>
TIME	<input type="checkbox"/>
Per Hc. on file	
CLASSIFICATION CODES	
SPECIAL	
A	

(15) NIOSY-89225

(14) NVR-2755

(10) Col. Fuller

(6) TRANSPORTABLE INTERIM  
ANTI-SUBMARINE CLASSIFICATION  
ANALYSIS CENTER (ASCAC)

(11) 8 May 1963

364900

Northrop Ventura Report No. 2755

(12) 26p

DOWNGRADED AT 3 YEAR INTERVALS;  
DECLASSIFIED AFTER 12 YEARS  
DOD DIR 5200.10

DDC  
RECEIVED  
MAR 7 1977  
D

DISTRIBUTION STATEMENT A  
Approved for public release  
Distribution Unlimited

~~CONFIDENTIAL~~  
UNCLASSIFIED

lps



~~CONFIDENTIAL~~  
**UNCLASSIFIED**

Report No. 2755

TRANSPORTABLE INTERIM  
ANTI-SUBMARINE CLASSIFICATION  
ANALYSIS CENTER (ASCAC)

Prepared by:

C. L. Fuller  
C. L. Fuller  
Systems Engineering Group

Approved by:

D. K. Welch  
D. K. Welch, Chief  
Systems Engineering Group

R. L. Halpern  
R. L. Halpern, Director  
Electronics Section

**DISTRIBUTION STATEMENT A**

Approved for public release;  
Distribution Unlimited

~~CONFIDENTIAL~~  
**UNCLASSIFIED**

~~CONFIDENTIAL~~  
UNCLASSIFIED

Report No. 2755

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1.0	INTRODUCTION	1
2.0	OBJECTIVES	3
3.0	TECHNICAL DESCRIPTION	4
3.1	Introduction	4
3.2	How Interim ASCAC Functions	4
3.3	Interim ASCAC Improves ASW Classification Capability	6
4.0	SUMMARY	10

~~CONFIDENTIAL~~  
UNCLASSIFIED

CONFIDENTIAL

Report No. 2755

LIST OF FIGURES

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE NO.</u>
3.1	Interim ASCAC	5
3.2	Transportable Interim ASCAC	7

CONFIDENTIAL

**CONFIDENTIAL**

Report No. 2755

SECTION 1.0

INTRODUCTION

In ASW operations it is extremely important to be able to classify the many unidentified sonar contacts which are made. At the present time, the classification of ASW contacts often requires that ASW units pursue a contact for extended periods of time until its identity is established with certainty. These operations are often costly, both in manpower utilization and in quantities of material expended. To give an example of the magnitude of these costs, a recent analysis of one ASW operation showed that the cost of the many Sonobouys dropped during this operation amounted to nearly \$300,000. From figures such as these it is clear that improved classification capabilities, besides being mandatory from a tactical viewpoint, will provide large economic dividends.

To find methods of improving ASW classification techniques, Northrop-Ventura has conducted studies of Anti-Submarine Classification Analysis Centers (ASCAC). These studies have included unfunded ASCAC systems studies performed under BuShips Project 208-LR-11, "Classification Analysis", and design studies performed under BuShips Contract NObsr 89225, "Design of Interim ASCAC System".

As a result of these programs, Northrop-Ventura has come to the

**CONFIDENTIAL**

**CONFIDENTIAL**

Report No. 2755

firm conclusion that the concepts represented by ASCAC are capable of providing significant improvements in ASW Classification capability. This system, originally conceived by operational fleet units, has demonstrated great potential in fulfilling operational needs.

After careful study and analysis, however, it is evident that much of the potential represented by the embryonic ASCAC Systems of today remains unrealized.

**CONFIDENTIAL**



CONFIDENTIAL

Report No. 2755

SECTION 2.0

OBJECTIVES

The objective of the Transportable Interim ASCAC is to provide the U. S. Navy with quick and effective means of upgrading the Classification capabilities of Fleet ASW Units. The techniques used in the Interim ASCAC System to accomplish this objective are:

1. Provide improved ASW capability through the development of the potential effectiveness of ASCAC;
2. Provide this capability in the form of mobile, air transportable systems which can quickly be fabricated with short lead-time and rapidly installed at minimum cost;
3. Provide (within ASCAC) a continuously available on-line training capability to enable all ASW sensor operators to maintain proficiency; *DATE*
4. Provide growth potential through the use of modular building block construction.

CONFIDENTIAL

## SECTION 3.0

## TECHNICAL DESCRIPTION

3.1 Introduction

It is beyond the scope of this short report to give a detailed description of the technical features of ASCAC. Within this limitation, the objective of this section is to describe briefly how the concepts and techniques employed in the transportable Interim ASCAC achieve the objective stated in the preceding section.

3.2 How Interim ASCAC Functions

Interim ASCAC consists of a team of ASW Classification specialists (ASCAT) who operate under the command of the ASCAC Watch Officer, as shown in Figure 3.1. Each team member is a highly trained specialist in a particular phase of ASW Classification.

When a signal is received from a sensor the Watch Officer assigns it to the team members who are most qualified to analyze and classify it. After the analysts have processed the signal, their findings are relayed back to the Watch Officer, who then compares them and correlates them with any other data at his disposal. The Watch Officer reaches a final classification analysis and then relays this information back to the originating sensor. He also sends

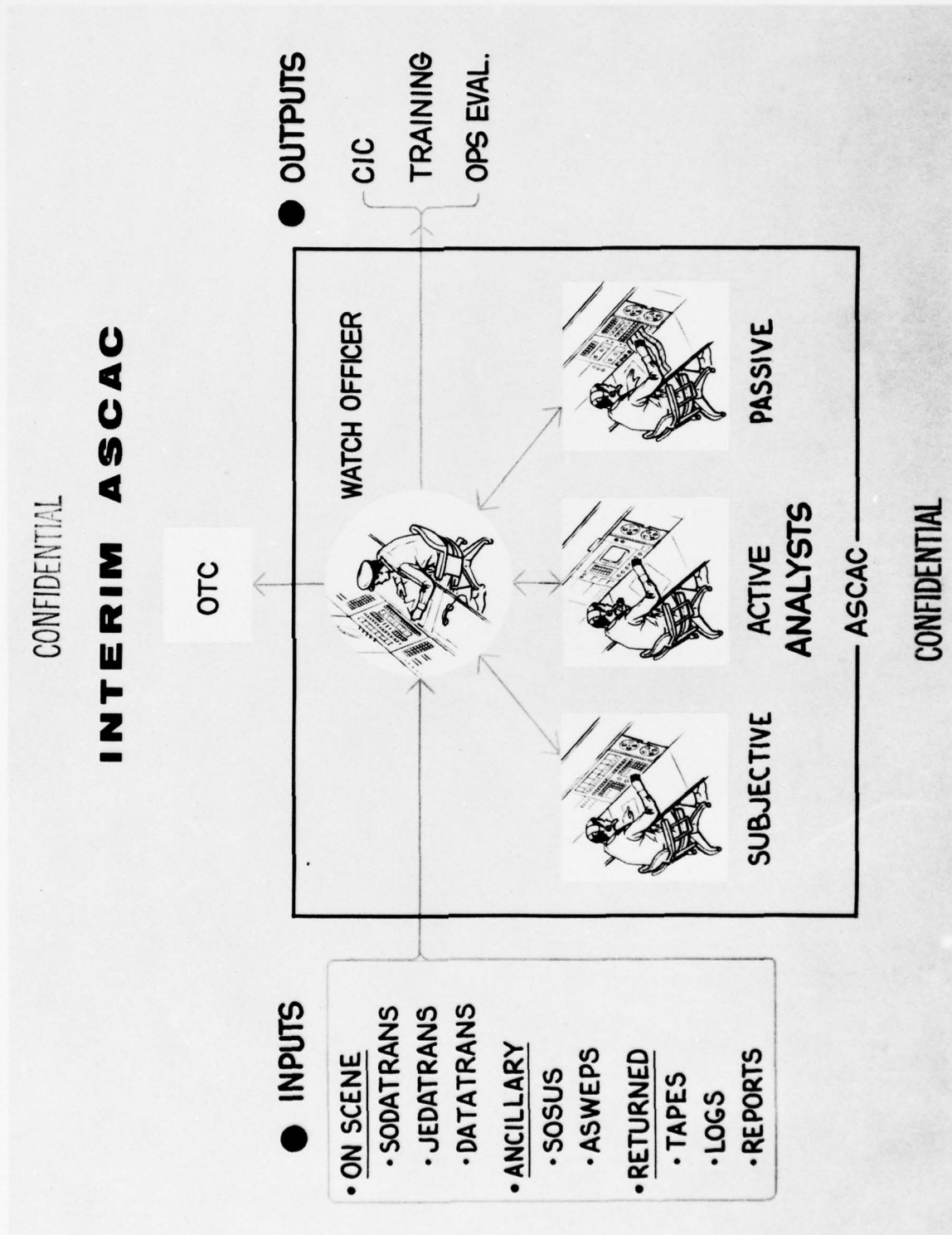


FIGURE 3.1



the data up through the chain of command to the Combat Information Center (CIC) and the Officer in Tactical Command (OTC). In this manner ASCAC serves a dual function, as a classification aid to the on-scene sensor, and also as a source of ASW information to the OTC. ASCAC functions as a centralized collection point for ASW information which is capable of supplying a highly skilled analysis of that information.

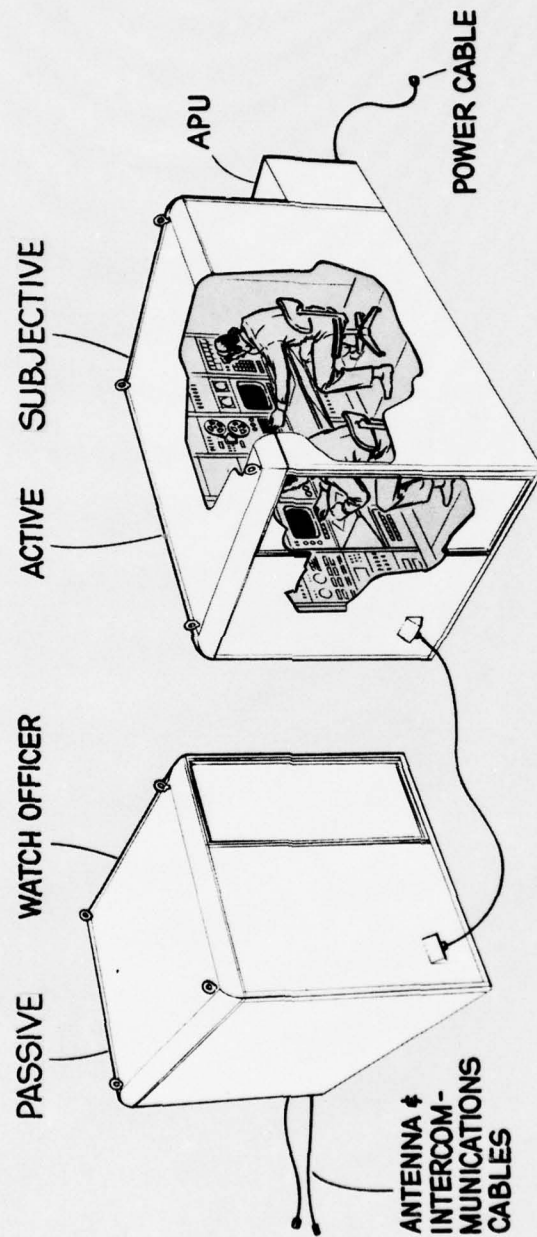
### 3.3 Interim ASCAC Improves ASW Classification Capability

Interim ASCAC provides improved ASW Classification capability by several means. One of these is to provide the ASCAC Watch Officer and his team of ASW classification specialists (ASCAT) with the best available tools to perform their assigned tasks. The method of achieving this is illustrated in Figure 3.2. In this configuration the Watch Officer and the analysts are supplied with the best currently available equipment, arranged in an optimum configuration, and located in a conducive environment. The construction of the modular enclosures illustrated in the figure form a self-contained unit whose layout and environment can be carefully designed and controlled, thus, assuring uniformity and standardization among all ASCAC installations.

Interim ASCAC improves ASW Classification capabilities through

CONFIDENTIAL

# TRANSPORTABLE INTERIM ASCAC



- FEATURES
- MODULAR DESIGN
- UNIFORM CONFIGURATION
- FLEXIBILITY
- MAXIMUM UTILIZATION
- SELF CONTAINED

CONFIDENTIAL

FIGURE 3.2

the use of adequate radio communication and data links. These allow the team, whose sole function is to perform analyses of ASW data, to be placed at the disposal of many ASW sensors. This technique effectively multiplies the usage factor of the personnel and equipment in ASCAC. It also provides a means whereby specialized equipment, which may not otherwise be available, can be placed at the disposal of many sensors. In this way, ASCAC results in economy of equipment. New equipment items which are often in critical supply can be made quickly available to many different sensors by means of ASCAC.

A third advantage of Interim ASCAC is the inherent advantage of transportability. The light weight, air-transportable, modular enclosures provides Interim ASCAC with mobility. Interim ASCAC can be rapidly transported and installed at any desired location. It can also be rapidly transferred from one location to another to meet the demands of various tactical situations. ASCAC can be deployed to units nearest the scene of an unexpected ASW operation, and supply them with the best classification capability available.

A fourth, and very important, means of improving ASW classification capability is the continuously available on-

UNCLASSIFIED

~~CONFIDENTIAL~~

Report No. 2755

line training capability inherent in the Interim ASCAC. Tape libraries and Gram records, provide ASCAC with the capability of reproducing pre-recorded ASW problems. This simulation capability, allows ASCAC to provide on-line refresher training to ASW personnel, and enables them to maintain maximum proficiency.

~~CONFIDENTIAL~~  
UNCLASSIFIED

UNCLASSIFIED  
~~CONFIDENTIAL~~

Report No. 2755

#### SECTION 4.0

##### SUMMARY

The Transportable Interim ASCAC represents the first phase of an overall program to provide the best possible classification capability within the state-of-the-art. The foregoing discussion is intended to indicate that this first step will result in a significant improvement in ASW classification capabilities. As new equipment and techniques are developed, classification capability can be increased. ASCAC, through its flexible design, modular construction and systems oriented approach to the problem, will be able to integrate these advances in order to provide even greater capability in the future.

~~CONFIDENTIAL~~  
UNCLASSIFIED

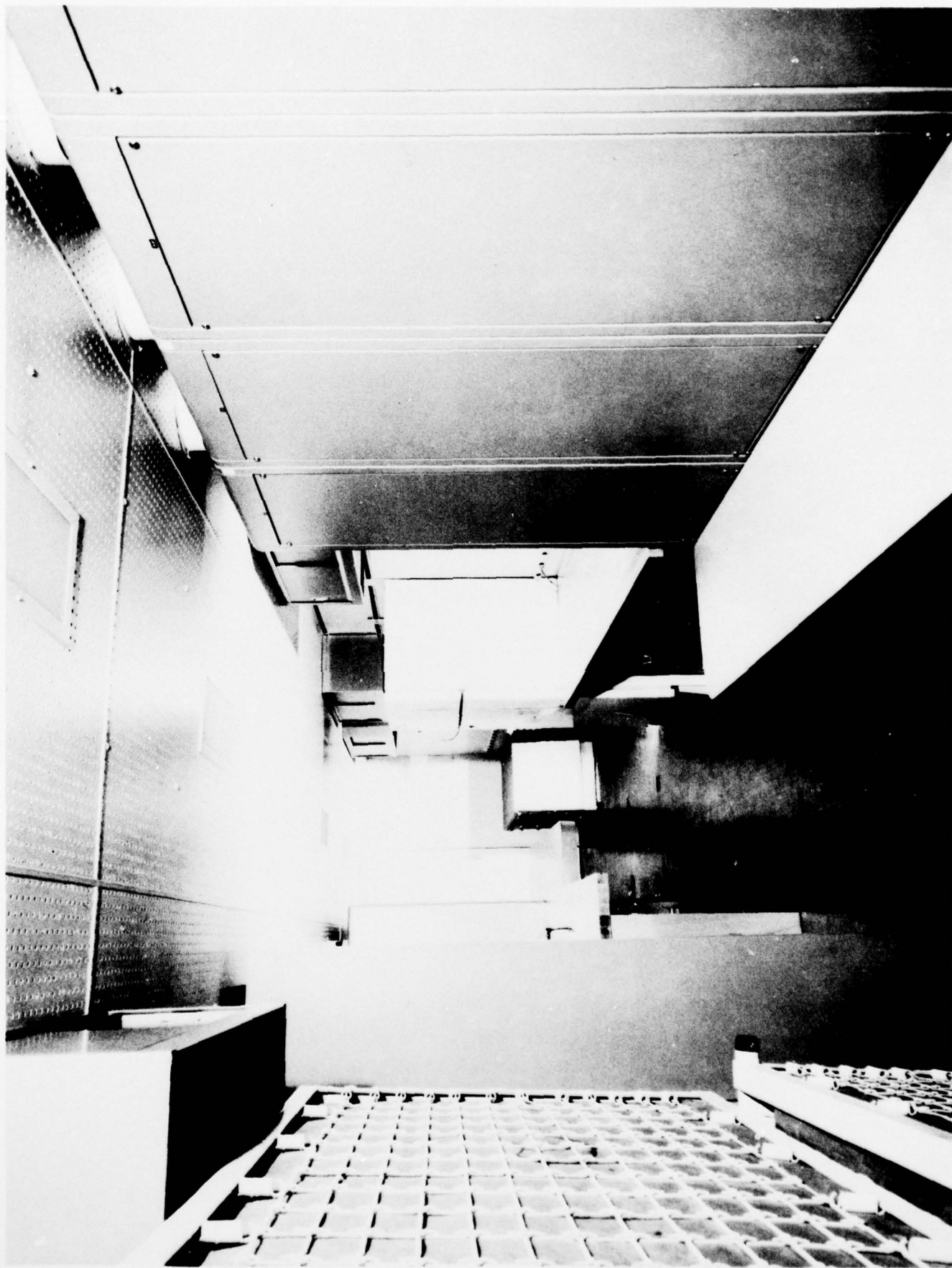






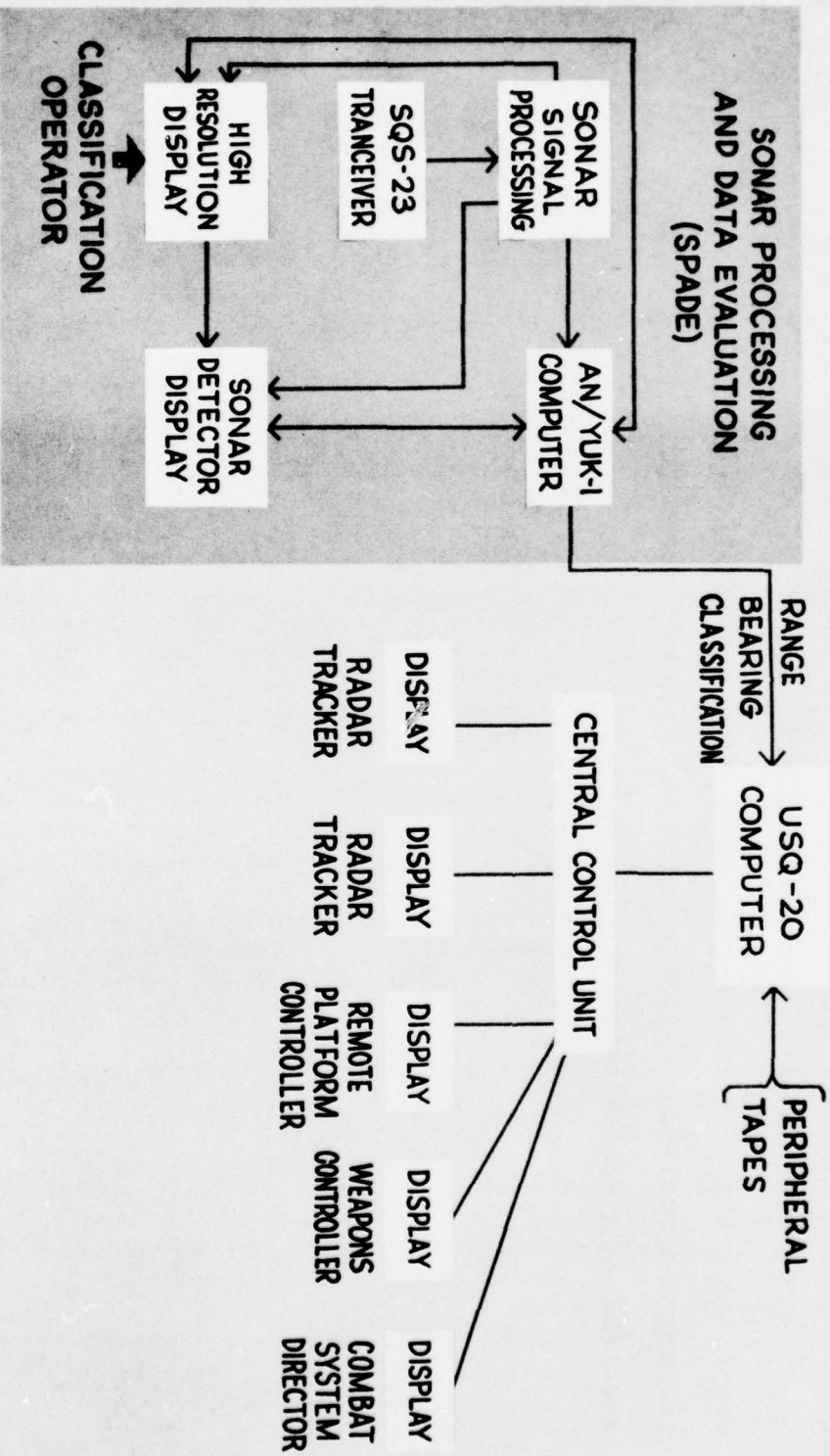






**UNCLASSIFIED**

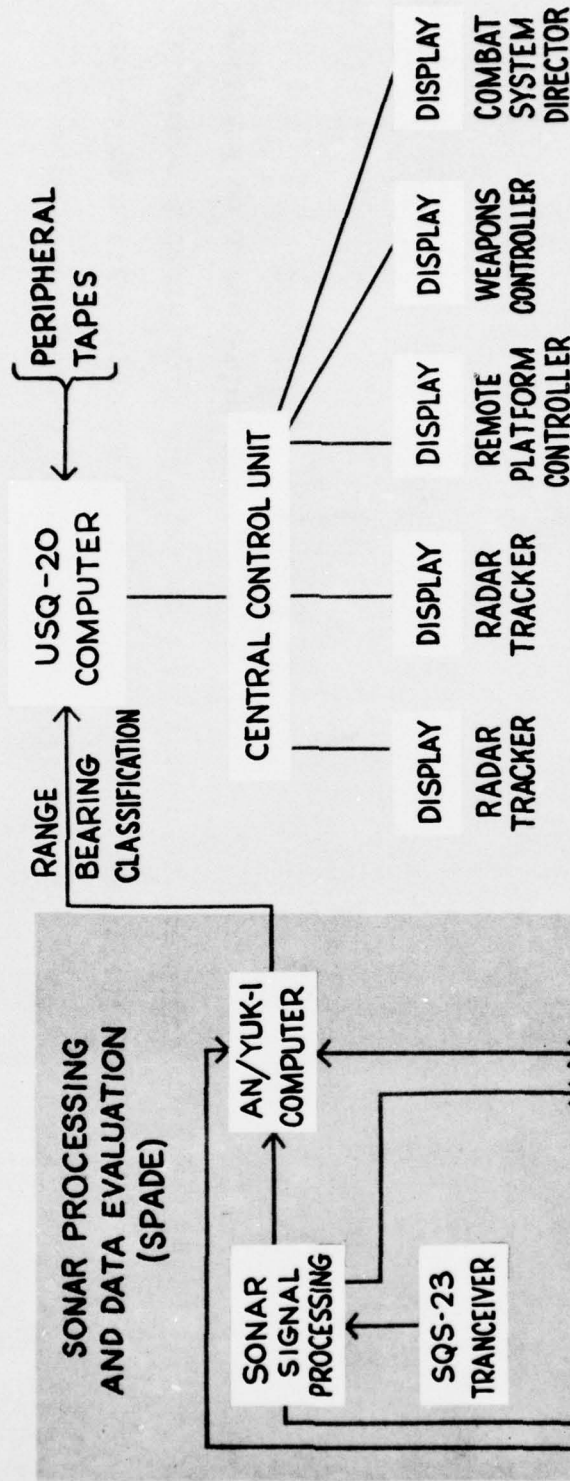
## SMALL SHIPS COMMAND DATA SYSTEM SSCDS



**UNCLASSIFIED**

**UNCLASSIFIED**

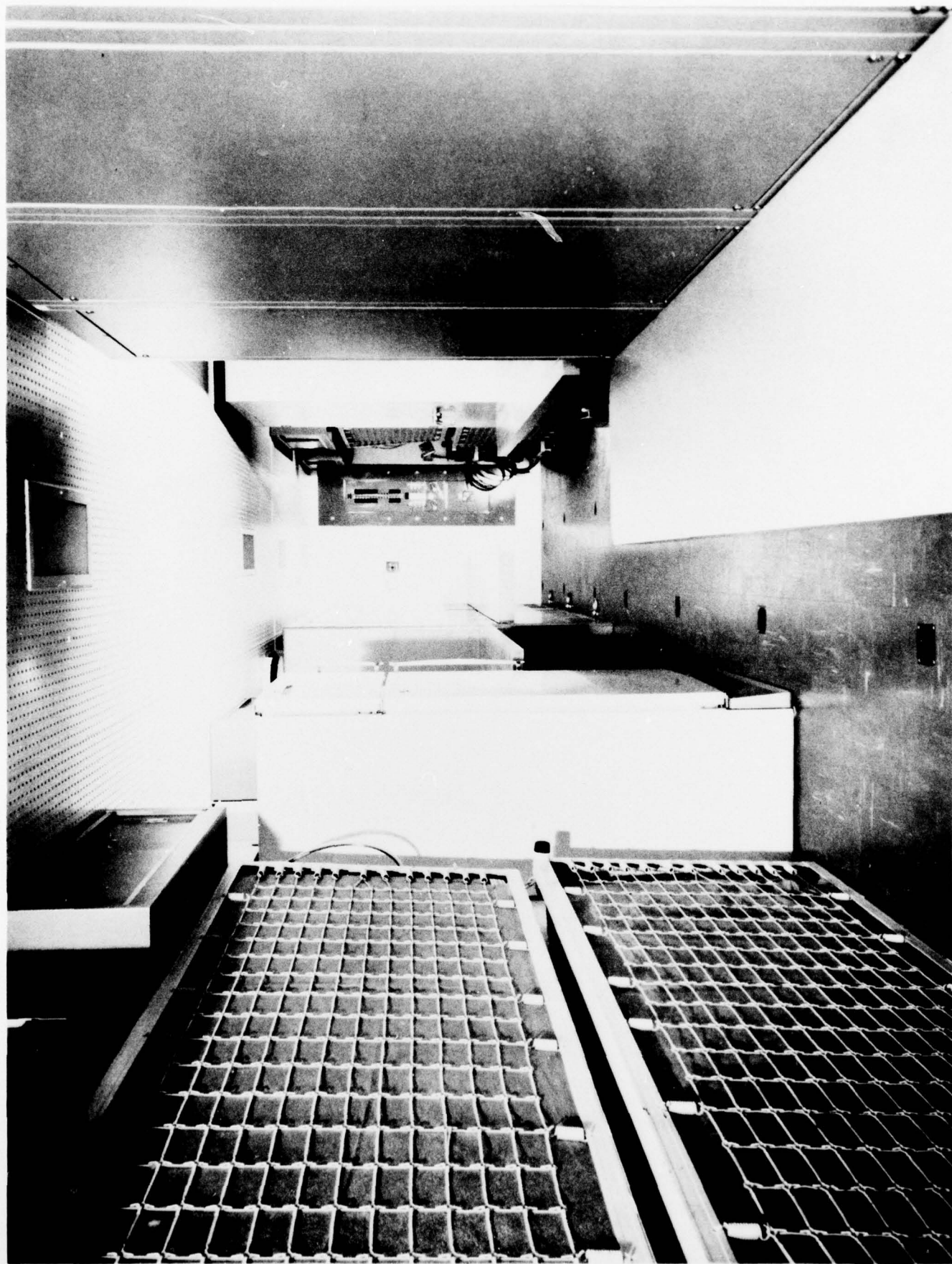
## SMALL SHIPS COMMAND DATA SYSTEM SSCDS



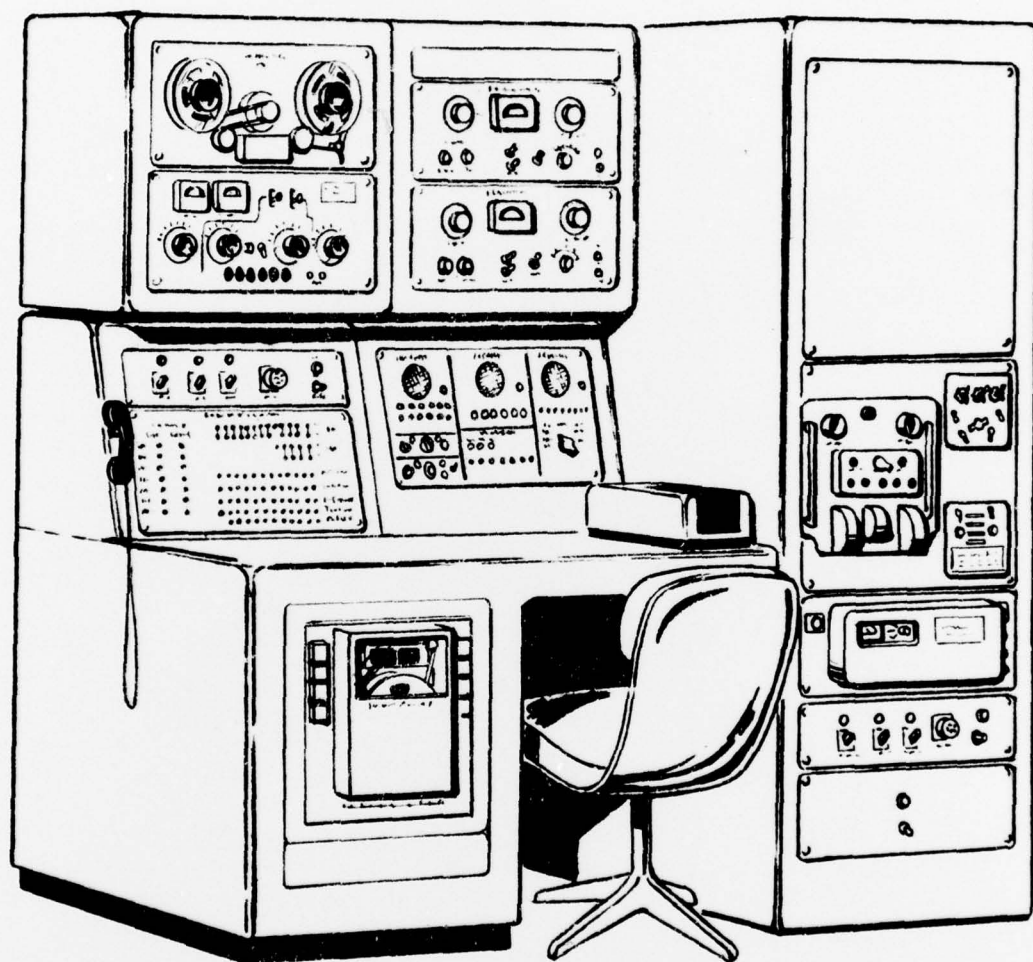
**UNCLASSIFIED**

ASCAC would greatly improve ASW operations by providing a significantly higher order of reliable intelligence for command decision. All available related data would be utilized on a real-time basis.

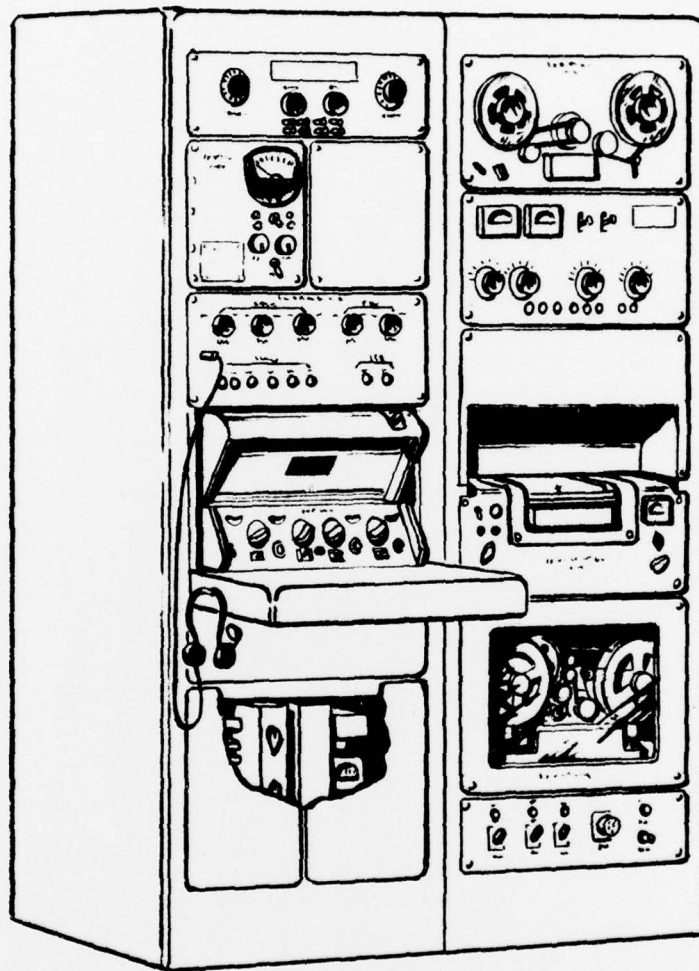




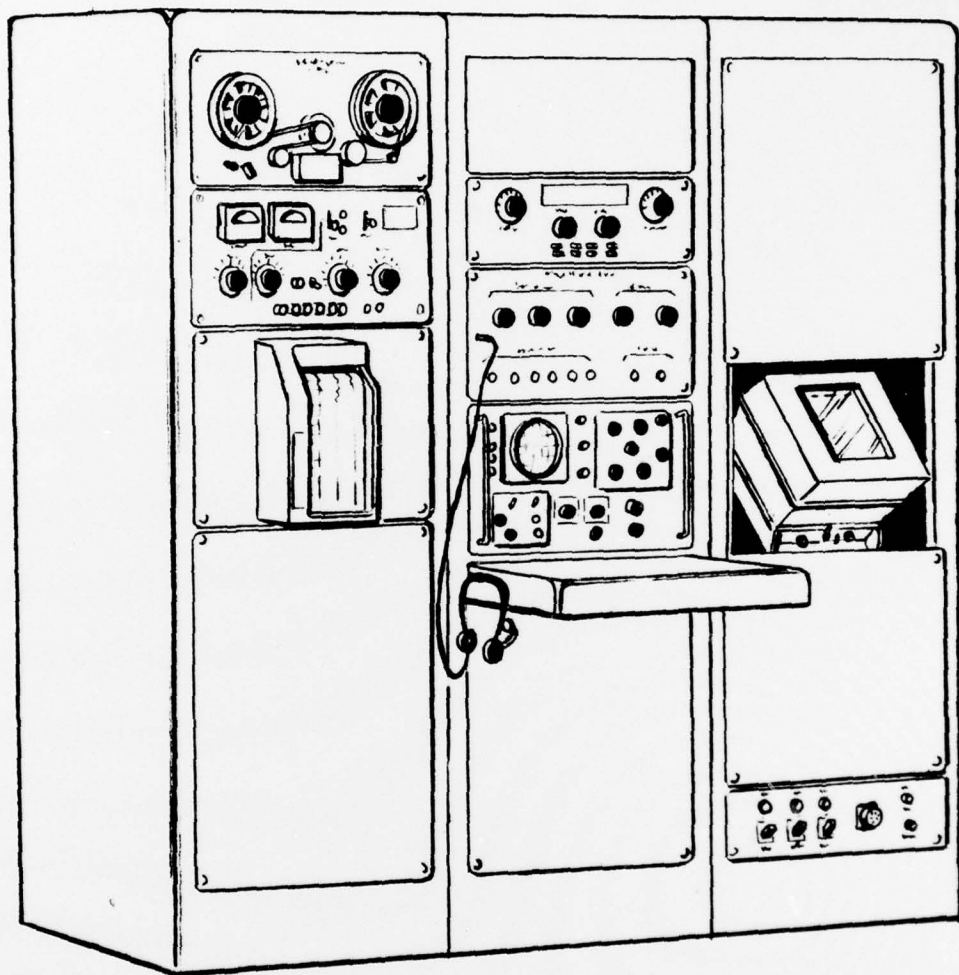
PRELIMINARY



WATCH OFFICER CONSOLE

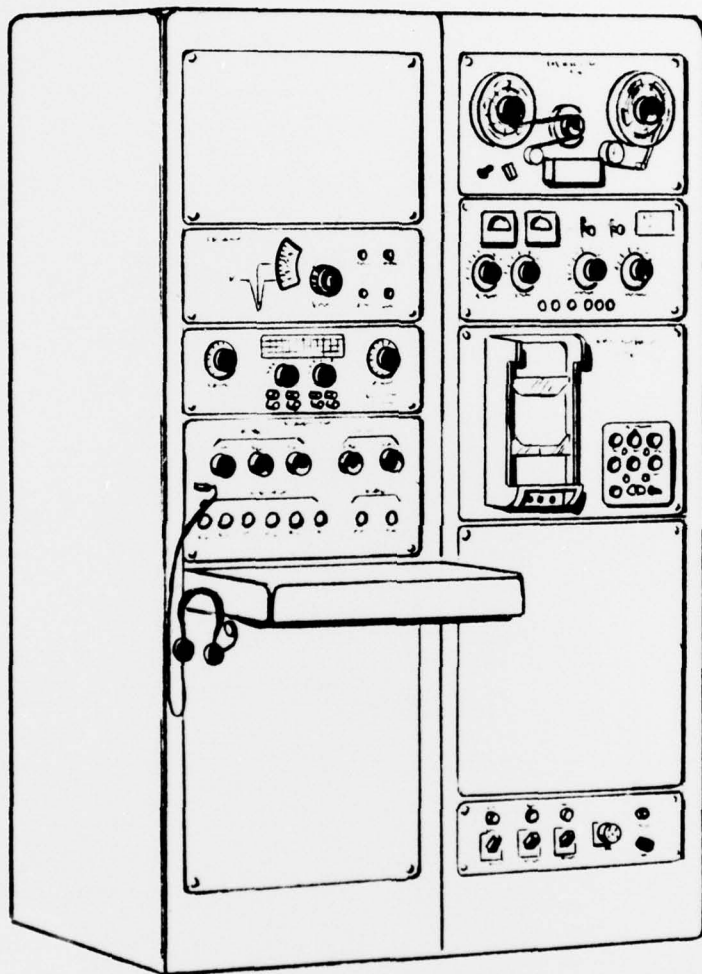


PASSIVE ANALYST STATION



ACTIVE ANALYST STATION





SUBJECTIVE ANALYST STATION

UNCLASSIFIED

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

UNCLASSIFIED